User manual

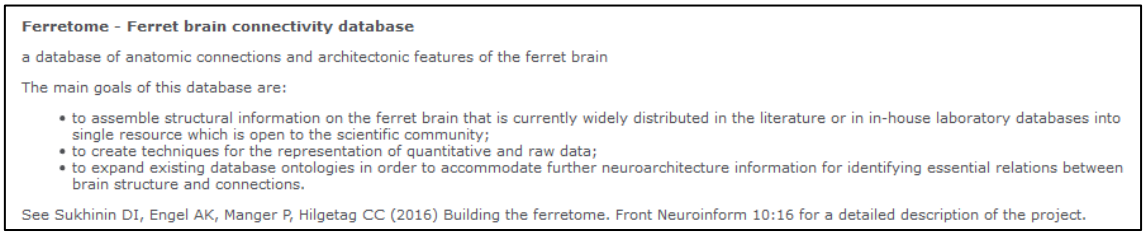
Index

Ferretome

- **Home**

From home page you can access to the rest of pages. Just click on any options from the right upper menu.

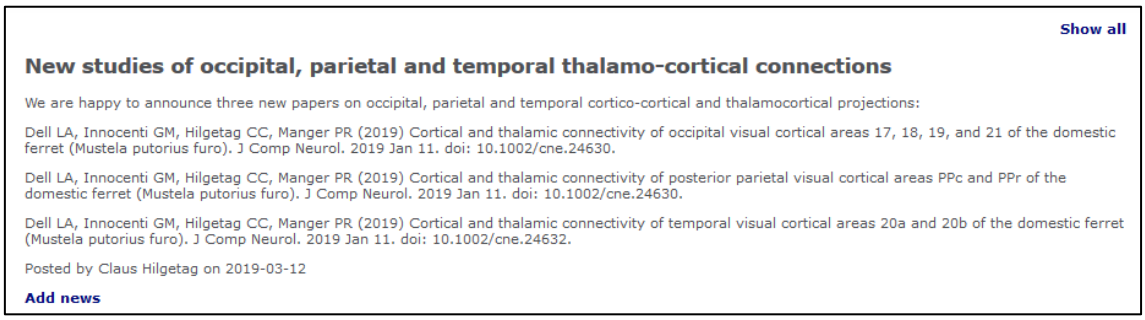
In this page you will find a description of the Ferretome project…



… and a resume with the latest news on the right side.

- **News**

All news is displayed on this page. You will find the titles and the description texts below.

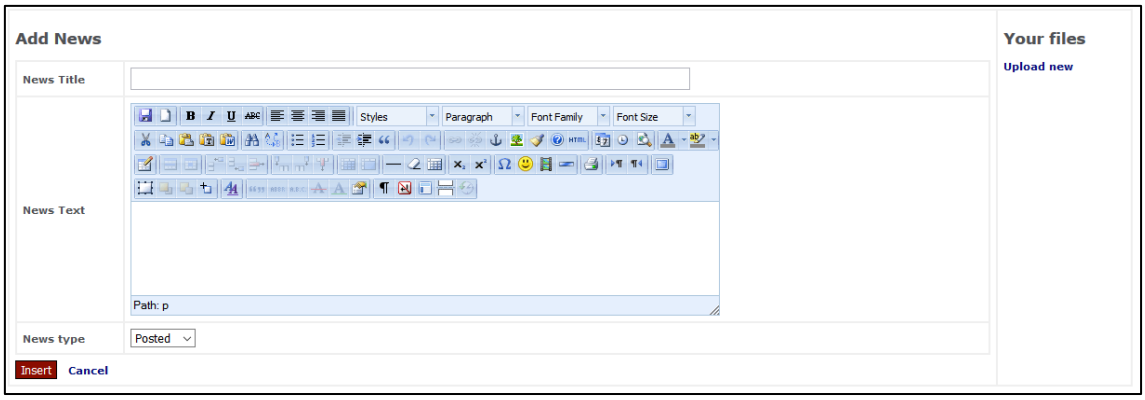


The “Show all” and “Add news” buttons can be used only for authorized users.

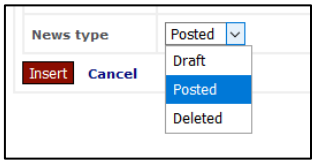
A resume with the latest news is also display on the right side.

- **Add news**

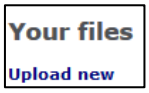
To add news, the title and its description must be introduced in their corresponding blanks.



After that, select "posted" type and click on "Insert". If you want to save it as a draft, select "draft" type.



You also can upload files to your news.



- **Delete news**

Same steps as for adding news but selecting "deleted" type.

- # Literature

A search box, which has two options, is showed up in this page. The first option, the selected one, is searching literature by title. The second option es searching by authors

If we search any literature, the results will be shown in the below table.

- **Authors**: all author of the literature, in the same order as in the paper; can be selected to show all literature of a specific author
- **Title**: of the literature; can be ordered alphabetically
- **Year**: of the literature; can be ordered numerically
- **Source**: of the literature; can be ordered alphabetically
- **Actions**: "details" → show all literature data

Results for literature

Authors	Title a..z z..a	Year 1..9 9..1	Source a..z z..a	Actions
Dell Leigh-Anne **Innocenti** Giorgio M **Hilgetag** Claus C **Manger** Paul R	Cortical and thalamic connectivity of temporal visual cortical areas 20a and 20b of the domestic ferret (Mustela putorius furo)	**2019**	**Journal of Comparative Neurology**	**Details**

If "details" button is clicked on, a new page will be shown. Four tabs are available:

- **Literature details**

A literature data resume (authors, title, year, source, abstract…).

Literature details:

Authors list	Dell Leigh-Anne Innocenti Giorgio M Hilgetag Claus C Manger Paul R
Literature Title	Cortical and thalamic connectivity of temporal visual cortical areas 20a and 20b of the domestic ferret (Mustela putorius furo)
Literature Year	2019
Abbreviations Full	Journal of Comparative Neurology
Number Or Chapter	
Page Number	
Literature Abstract	The present study describes the ipsilateral and contralateral corticocortical and corticothalamic connectivity of the temporal visual areas 20a and 20b in the ferret using standard anatomical tract-tracing methods. The two temporal visual areas are strongly interconnected, but area 20a is primarily connected to the occipital visual areas, whereas area 20b maintains morewidespread connections with the occipital, parietal and suprasylvian visual areas and the secondary auditory cortex. The callosal connectivity, although homotopic, consists mainly of very weak anterograde labeling which was more widespread in area 20a than area 20b. Although areas 20a and 20b are well connected with the visual dorsal thalamus, the injection into area 20a resulted in more anterograde label, whereasmore retrograde label was observed in the visual thalamus following the injection into area 20b. Most interestingly, comparisons to previous connectional studies of cat areas 20a and 20b reveal a common pattern of connectivity of the temporal visual cortex in carnivores, where the posterior parietal cortex and the central temporal region (PMLS) provide network points required for dorsal and ventral streaminteraction enroute to integration in the prefrontal cortex. This pattern of network connectivity is not dissimilar to that observed in primates, which highlights the ferret as a useful animal model to understand visual sensory integration between the dorsal and ventral streams. The data generated will also contribute to a connectomics database, to facilitate cross species analysis of brain connectomes andwiring principles of the brain.
DOI web link	**Click here to open in new window**
PubMed web link	**Click here to open in new window**

- **Mapping data**

A mapping data resume of the brain map is shown in the first table.

Mapping data:

Brain Maps Index	MRI2010
Reference Figures	1,5
Reference Text	75-77
Citation	Retrogradely labelled neurons were found in all visual areas (57.62% of labelled neurons) of the cerebral cortex, including areas 17, 18, 19, 21, PPc, PPr, 20a, 20b, PS, AEV, AMLS, PMLS, ALLS, PLLS, VLS and DLS. Amongst these areas those most strongly labelled included 18 (11.43%), PMLS (8.54%), 21 (8.08%), and AMLS (6.71%). Labelled neurons were located in the primary auditory cortex (9.15%) and the region of the posterior limb of the ectosylvian gyrus lateral to the primary auditory cortex that most likely represents higher order auditory cortex (15.70%) (Nelken et al., 2004). Several somatosensory cortical areas gave rise to collicular projections including (10.82% of labelled neurons), in order of intensity SIII (5.95%), PV (2.13%), SII (1.37%), and a very few from areas 3b (0.91%) and 3a (0.46%). The primary motor cortex only revealed few retrogradely labelled neurons (0.46%), however, within the putative supplementary motor area (SMA) (6.86%) and pre-SMA (2.59%), as well as in the pre-motor cortex (5.49%), several labelled neurons were identified. The prefrontal region of the cortex (Duque and McCormick, 2010), that region located anterior to the gigantocellular layer 5 neurons giving rise to the cortico-pontine tract, was devoid of labelled neurons. In the cerebral hemisphere contralateral to the injected superior colliculus retrogradely labelled neurons were re- stricted to three cortical areas. A substantial cluster was found in the pre-motor cortex (60% of labelled neurons in the contralateral hemisphere), and may reveal the location of the frontal eye field in the ferret. A smaller cluster was located in area SII of the somatosensory cortex (32%), and the odd labelled neuron was found in the SMA (8%).
Comments	
Map type	Adopted Deliniated

And the table below shows all the brain sites localized in this brain map.

Defined brain sites		
Acronym Name	Acronym Full Name	Brain Sites Type Name
3a	Proprioceptive somatosensory cortical area	Area_Ctx_2D
3b	Primary somatosensory cortex	Area_Ctx_2D
17	primary visual cortex	Area_Ctx_2D
18	second visual cortical area	Area_Ctx_2D
19	third visual cortical area	Area_Ctx_2D
AEV	anterior ectosylvian visual area of ferret	Area_Ctx_2D
AMLS	anteromedial lateral suprasylvian visual area	Area_Ctx_2D
ALLS	anterolateral lateral suprasylvian visual area	Area_Ctx_2D
Aud	auditory cortex	Area_Ctx_2D
20a	temporal visual area a	Area_Ctx_2D

- **Experimental data**

All injections are shown in the following table. Each injection data is divided in four categories, which you must click on to read their content:

Experimental data:

MRI2010_1	
Injection data	
Site of injection	
Injection outcomes	
Injection method	

➢ Injection data

An injection data resume (citation, injection hemisphere, injection volume…).

Injection data

Injections Citation	The parieto-occipital cortex was exposed under aseptic conditions and depth penetrations of electrodes in combination with electrophysiological record- ing (as previously described, Manger et al., 2002a,b, 2004) and sensory stimulation (visual—full field flashes of white light, auditory—loud clicks, somatosensory—brushes applied to the skin surface) were used to determine the location of the superior colliculus. Following this approximately 500 nl of tracer was delivered into the superior colliculus using a Hamiltonmicrosyringe. In two cases we injected two fluores- cent dextran tracers, fluororuby and fluoroemerald (5% in 0.1M phosphate buffer, Molecular Probes), into the left and right superior colliculi respectively. In the other two cases we injected biotinylated dextran amine tracer (5% in 0.1M phosphate buffer, Molecular Probes) into the left superior colliculus only (Fig. 8).
Injections RefText	82-83
Injections RefFigures	8
Injections Hemisphere	L
Injection Volume	500nl
Injections Concentration	5%
Injections Laminae	

➢ Site of injection

The name and abbreviation of the site of injection.

Site of injection

Acronym Name	Acronym Full Name	Brain Sites Type Name
SC	superior colliculus	Nucleus_SubCtx_3D

➢ Injection outcome

A table with all injection outcomes data.

Acronym Name	Acronym Full Name	Brain Sites Type Name	Extension Codes Name	Labelled Sites Density	Total Neurons Number	Percent Neurons Labeled	Labelled Sites Laminae
17	primary visual cortex	Area_Ctx_2D	C	1		3	
18	second visual cortical area	Area_Ctx_2D	C	3		11	
19	third visual cortical area	Area_Ctx_2D	C	2		5	
21	fourth visual cortical area	Area_Ctx_2D	C	3		8	
PMLS	posteromedial lateral suprasylvian visual area	Area_Ctx_2D	C	2		9	
AMLS	anteromedial lateral suprasylvian visual area	Area_Ctx_2D	C	2		7	
PLLS	posterolateral lateral suprasylvian visual area	Area_Ctx_2D	C	1		1	
ALLS	anterolateral lateral suprasylvian visual area	Area_Ctx_2D	C	1		1	
DLS	dorsal lateral suprasylvian visual	Area_Ctx_2D	C	1		1	

➢ Injection method

A description about the injection method used.

Injection method

Tracers Name	Reference Text	Reference Figures	Bilateral Use	Injection Method	Survival Time	Section Thickness	Number Of Sections
fluoroemerald	82	8	N	Hamilton microsyringe	2 weeks	50 µm	?

- Maps relation data

A table with all maps relations.

Maps relation data:

Acronym Name A	Acronym Full Name A	Relation Codes Desc	Acronym Name B	Acronym Full Name B	Reference Text	Reference Figures	Citation	Comments
VDT	visual dorsal thalamus	is Large than	LGN	lateral geniculate nucleus		5	Within the visual dorsal thalamus we found ipsilateral axonal terminals, consisting of pre-terminal branches and their boutons of collicular origin, in specific subdivisions of the lateral geniculate nucleus, lateral posterior nucleus (LP) and the pulvinar.	
VDT	visual dorsal thalamus	is Large than	LP	lateral posterior nucleus of the dorsal thalamus		5	Within the visual dorsal thalamus we found ipsilateral axonal terminals, consisting of pre-terminal branches and their boutons of collicular origin, in specific subdivisions of the lateral geniculate nucleus, lateral posterior nucleus (LP) and the pulvinar.	
VDT	visual dorsal thalamus	is Large than	Pul	pulvinar nucleus of the dorsal thalamus		5	Within the visual dorsal thalamus we found ipsilateral axonal terminals, consisting of pre-terminal branches and their boutons of collicular origin, in specific subdivisions of the lateral geniculate nucleus, lateral posterior nucleus (LP) and the pulvinar.	

- **Connectivity**

Two options are shown in this page: ferret brain (ferret connectivity data) and cat connectivity mapped into ferret brain (import cat connectivity data into a ferret brain)

- **Ferret brain**

A matrix with all connectivity between injection outcomes.

Ferret connectivity

Selected literature: Cortical and thalamic connectivity of temporal visual cortical areas 2 MIDH2019 **replace**

	20a	20b	17	18	19	21	PPc	PPr	PS	AEV	PMLS	PLLS	ALLS	AMLS	VLS	DLS	M1	PreMot	SIII	SII/PV	PreF	A1	AAF	PSF	PPF	AVF
20a	3	3	2	3	3	3	-	-	2	1	2	1	1	1	2	1	1	-	-	1	1	1	1	2	-	-
20b	1	1	-	1	2	1	1	1	1	2	3	2	2	1	1	1	1	1	1	1	1	1	-	1	1	1
17	1	1	1	1	1	1	1	1	1	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
18	2	2	1	1	1	1	-	-	2	-	1	1	1	1	2	-	-	-	-	-	-	-	-	-	-	-
19	1	1	1	1	2	2	1	1	1	1	2	1	1	1	2	-	-	-	1	1	-	-	-	-	-	-
21	1	1	1	1	1	1	2	1	2	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-
PPc	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	1
PPr	-	-	1	1	1	1	1	2	-	1	1	1	1	1	-	-	1	1	1	1	1	-	-	-	-	-
PS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PMLS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- **Cat connectivity mapped into ferret brain**

Not available yet. It will allow you to import all data from cat connectivity into a ferret brain.

- **Contacts**

Contact information.

Contacts

for info on the Ferretome project: Claus C. Hilgetag, PhD: c.hilgetag@uke.de

for info on Ferretome content: Leigh-Anne Dell, PhD: l.dell@uke.de

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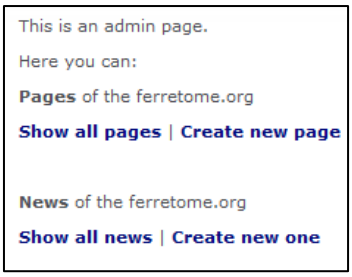
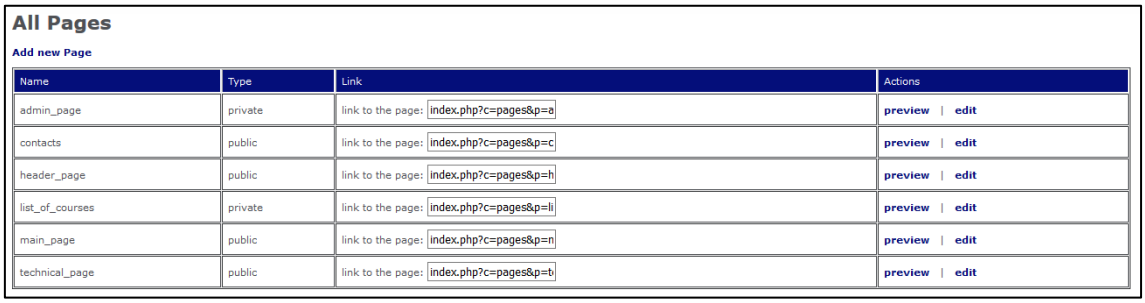
Ferretome

- **Admin**

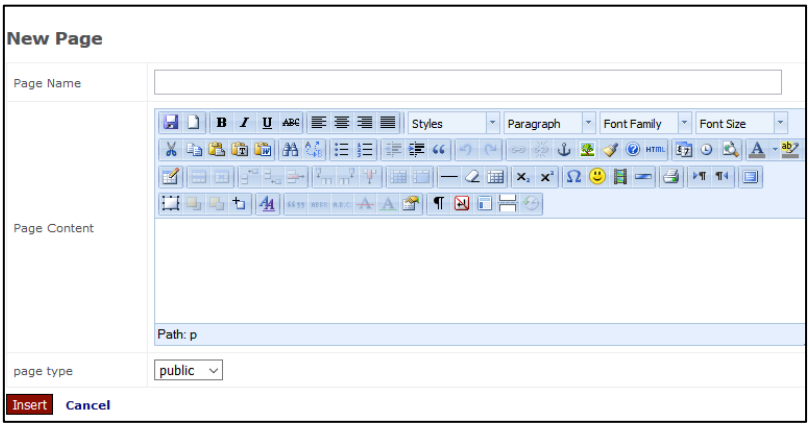


Page only available for authorized users. From this page, you will able to add/edit all pages, even the news which are shown in the news page.

If you click on “Show all pages”, a table with all the current pages is shown. You can preview or edit them.



If you click on “Create new page”, you will have to insert the page name, its content and the type of it (private or public). Private pages are only available to be seen by authorized users.



If you click on any options about news, please check the news section (above).

- **Login**

In case you are an authorized user, introduce your email and password.